Claims

1. (currently amended) A system, comprising:

two or more arrays spaced apart from each other to define an interrogation region therebetween, the arrays each being structured to turn about the interrogation region to interrogate a person in the interrogation region with electromagnetic radiation at one or more frequencies in a range of about 200 MHz to about 1 THz to provide corresponding interrogation signals;

one or more processors operable to establish data corresponding to a topographical representation of the person determined from the interrogation signals and generate an output as a function of the data, the topographical representation comprising a plurality of voxels that define a volume of the person in the interrogation region; and

a device responsive to the output to provide an indication to an operator if the person is suspected of carrying one or more concealed objects that pose a threat to security.

2. (original) The system of claim 1, wherein the arrays are each provided with a panel and a mechanism to move a corresponding one of the arrays along a curvilinear path about the interrogation region.

3. (original) The system of claim 2, wherein the curvilinear path approximates an arc of a circle.

4. (original) The system of claim 2, wherein the panel for each of the arrays is at least partially transparent to facilitate viewing therethrough by an operator.

5. (original) The system of claim 1, wherein the device includes a display and the one or more processors include means for generating the output in a form representative of one or more cross sectional views of the person.

6. (original) The system of claim 1, wherein the arrays are each structured to operate at several different frequencies and each correspond to an arc about the interrogation region subtending an angle of at least 120 degrees.

7. (original) The system of claim 1, wherein the one or more processors are operable to generate the data by combining data sets corresponding to a number of different cylindrical images and the arrays are each structured to provide a semi-cylindrical scan.

8. (previously presented) A method, comprising:

providing two or more arrays each shaped to turn about a person positioned between the arrays;

operating the arrays to perform an interrogation of the person with electromagnetic radiation at one or more frequencies in a range of about 200 MHz to about 1 THz;

generating a plurality of image data sets from the interrogation; and

generating volumetric data from the image data sets, the volumetric data being indicative of the surface of the person.

9. (original) The method of claim 8, which includes moving each of the arrays along a path positioned about the person.

10. (original) The method of claim 9, wherein at least a portion of the path is curvilinear and the path subtends an angle of at least 120 degrees relative to the person.

11. (original) The method of claim 9, wherein at least a portion of the path is rectilinear.

12. (previously presented) The method of claim 8, which includes displaying one or more cross sectional views of the person based on the volumetric data.

13. (previously presented) The method of claim 8, wherein the generating of the volumetric data includes combining the image data sets incoherently.

14. (original) The method of claim 8, wherein the arrays oppose one another to define an interrogation region therebetween and are arranged to provide a security checkpoint.

15. (currently amended) A method, comprising:

generating electromagnetic radiation at one or more frequencies in a range of about 200 MHz to about 1 THz with two or more arrays to perform an interrogation of a person positioned between the two or more arrays;

moving at least one of the arrays along a path about the person during the interrogation; and

generating volumetric data comprising a plurality of voxels from the interrogation to detect if the person is concealing an object.

16. (original) The method of claim 15, wherein the path subtends an angle of at least 90 degrees relative to the person.

17. (original) The method of claim 15, wherein the path subtends an angle of at least 120 degrees relative to the person.

18. (original) The method of claim 15, wherein the arrays number two and oppose one another to define an interrogation region therebetween and are arranged to provide a security checkpoint, and at least a portion of the path is curvilinear or rectilinear.

19. (previously presented) The method of claim 15, which includes displaying one or more cross sectional views of the person based on the volumetric data.

20. (previously presented) The method of claim 15, which includes generating the volumetric data from a number of cylindrical image data sets.

21. (withdrawn) A method, comprising:

performing an interrogation of a person with electromagnetic radiation including one or more frequencies in a range of about 200 MHz to about 1 THz;

generating one or more cross-sectional images of the person based on the interrogation; and

determining if the person is carrying a concealed object that poses a threat to security from at least one of the one or more cross-sectional images.

22. (withdrawn) The method of claim 21, wherein said generating includes providing the one or more cross-sectional images from a number of data sets each corresponding to a different cylindrical image of the person.

23. (withdrawn) The method of claim 21, wherein said performing including moving a pair of opposed arrays about the person along a nonstraight path.

24. (withdrawn) The method of claim 23, wherein the nonstraight path subtends an angle of at least 90 degrees.

25. (withdrawn) The method of claim 23, wherein the arrays are each operable to provide the electromagnetic radiation at a plurality of different frequencies.

26. (withdrawn) The method of claim 21, wherein said determining includes displaying the one or more cross-sectional images to an operator.

27. (previously presented) The method of claim 1, wherein the one or more processors are operable to generate the data by incoherently combining multiple image data sets.

28. (withdrawn) The method of claim 1, wherein the one or more processors are operable to generate the data by combining multiple image data sets using an averaging technique.

29. (withdrawn) The method of claim 1, wherein the one or more processors are operable to generate the data by combining multiple image data sets using a weighting function.

30. (withdrawn) The method of claim 8, wherein the generating of the volumetric data includes combining the image data sets using an averaging technique.

31. (withdrawn) The method of claim 8, wherein the generating of the volumetric data includes combining the image data sets using a weighting function.

32. (previously presented) The method of claim 8, wherein the volumetric data is further indicative of the surface of a man-made object concealed or carried by the person.

33. (previously presented) The method of claim 15, wherein the generating the volumetric data includes combining a plurality of image data sets incoherently.

34. (withdrawn) The method of claim 15, wherein the generating the volumetric data includes combining a plurality of image data sets using an averaging technique.

35. (withdrawn) The method of claim 15, wherein the generating the volumetric data includes combining a plurality of image data sets using a weighting function.

36. (previously presented) The method of claim 15, wherein the volumetric data is indicative of the surface of the person and a man-made object concealed or carried by the person.

37. (new) The system of claim 1, wherein the one or more processors are further operable to render one or more two-dimensional images from the volumetric data.

38. (new) The system of claim 37, wherein the one or more processors are operable to perform the rendering using a ray projection technique.

39. (new) The method of claim 15, further comprising rendering one or more two-dimensional images from the volumetric data.

40. (new) The method of claim 39, wherein the rendering is performed using a ray projection technique.

41. (new) The method of claim 39, wherein the rendering comprises:

rendering a first two-dimensional image from a first viewing angle; and

rendering a second two-dimensional image from a second viewing angle different than the first viewing angle.